Deber 2º

Estática

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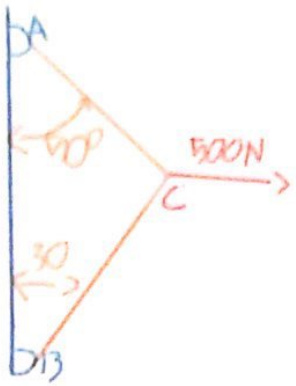
Código: 203429

44)



$\Sigma Y = 0$

$AC\cos 50 - BC\cos 30 = 0$

$AC = \frac{BC\cos 30}{\cos 50} \Rightarrow AC = 440,28N$

$\Sigma X = 0$

$-BC\sin 30 - AC\sin 50 + 500N = 0$

$BC\sin 30 + AC\sin 50 = 500N$

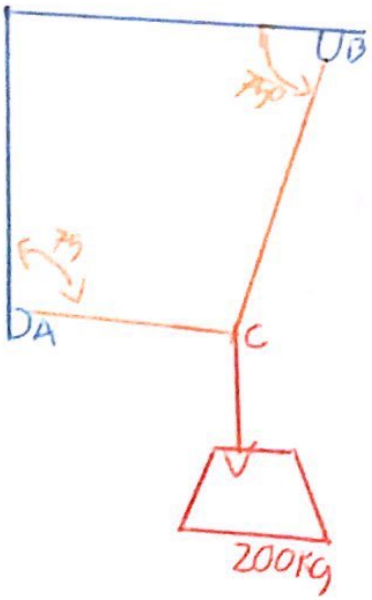
$BC\sin 30 + BC\frac{\cos 30 \sin 50}{\cos 50} = 500N$

$\frac{BC}{2} + BC(1,03) = 500N$

$1,53\,BC = 500N$

$TBC = 326,79$

46)



$Q = mg$

$Q = 200(9,8) \Rightarrow 1960N$

$\frac{T_1}{\sin 105} = \frac{T_2}{\sin 150} = \frac{Q}{\sin 60}$

$T_1 = 2265(\sin 105)$

$T_1 = 2188,32N$

$T_2 = 2188,32N(\sin 15)$

$T_2 = 586,36N$

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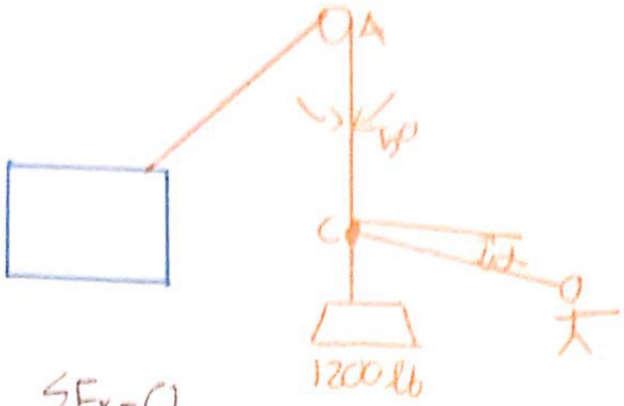
47)



$\Sigma F_x = 0$

$T_{AC}\cos 95° + T_{BC}\cos 240° = 0$

$0{,}939\,T_{BC} - 0{,}08\,T_{AC} = 0$

$\Sigma F_y = 0$ $\qquad T_{BC} = \frac{0{,}08\,T_{AC}}{0{,}939} \Rightarrow 0{,}085\,T_{AC}$

$\Rightarrow 48{,}29$

$T_{AC}\,sen95° + T_B\,sen340° - W = 0$

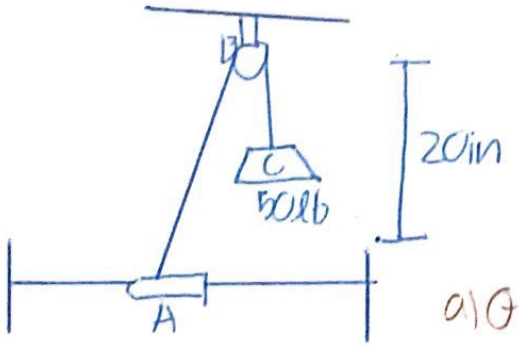
$0{,}996\,T_{AC} - 0{,}34\,T_{BC} - 545{,}45 = 0$

$0{,}996\,T_{AC} - 0{,}34(0{,}085\,T_{AC}) - 545{,}45 = 0$

$0{,}97\,T_{AC} = 545{,}45$

$T_{AC} = 568{,}17\,N$

63)



$\Sigma F_x = 0$

$T\cos\theta = P$

$P = 50\cos\theta$

a) $\theta = \tan^{-1}\left(\frac{20}{4{,}75}\right) = 77{,}30°$

$P = 50\cos(77{,}3)$

$P = 10{,}99\,lb$

b) $\theta = \tan^{-1}\left(\frac{20}{15}\right)$

$\theta = 53{,}123$

$P = 50\cos 53{,}123$

$P = 30{,}004\,lb$

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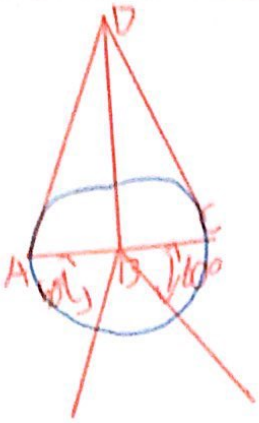
73)



$\Sigma F_z = 0$

$-T_{BD}\,sen30\,sen40 = 32,14N$

a) $T_{BD} = \frac{32,14}{sen30\,sen40} = 100,43$

b) $\cos\theta_x = \frac{F_x}{F}$

$\cos\theta_x = sen(30)\,sen(40) = -0,38$

$\theta = 112,33$

$\cos\theta_y = \cos 300 = 0,86$

$\theta_y = 300$

$\cos\theta_z = \frac{-32,1}{100} \Rightarrow -0,32$

$\theta = 18,070$

87) $\vec{DB} = \langle 480, -510, 320 \rangle$

$|DB| = \sqrt{510^2 + 480^2 + 320^2} = 770mm$

$\vec{F_{DB}} = 385 \langle 0,62, -0,66, 0,41 \rangle$

$\vec{F_{DB}} = \langle 238,7, -254,1, 157,8 \rangle$

89) A(0, 600, 360)

B(900, 0, 0)

C(900, 0, 0)

$\vec{AB} = \langle 900, -600, -360 \rangle$

$|\vec{AB}| = \sqrt{900^2 + 600^2 + 360^2}$

$= 1140$

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